

CLAIMS

What is claimed is:

1. In a display including one or more edges that define a display area in which at least a portion of an image is displayed, a method of changing the relative size of the image, comprising the steps of:

selecting a zoom point in the displayed image, the zoom point corresponding to a point in the displayed image that is to be zoomed; and

changing the relative size of the selected zoom point while translating the selected zoom point along a substantially straight zoom line that passes through the selected zoom point and extends between a central point in the display area and an edge point on the display area that is closest to the selected zoom point.

2. The method of Claim 1, further comprising:

inhibiting any further change in relative size, and any further translation along the zoom line, when the relative size change attains a predetermined magnitude or the selected zoom point reaches the central point in the display area.

3. The method of Claim 1, wherein, when the selected zoom point substantially coincides with the display area central point, the selected zoom point does not translate while its relative size is changing.

4. The method of Claim 1, further comprising:

while changing the relative size of the selected zoom point, translating at least a portion of the displayed image out of the display area.

5. The method of Claim 1, wherein the displayed image includes an edge point image point, the image edge point located at a position on the display area edge that coincides

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with the display area edge point to which the zoom line extends, and wherein the method further comprises:

while changing the relative size of the selected zoom point, maintaining the position of the image edge point.

6. The method of Claim 1, wherein the displayed image includes a plurality of image points aligned with the display area edge that includes the display area edge point to which the zoom line extends, and wherein the method further comprises:

while changing the relative size of the selected zoom point, maintaining the alignment of each of the image points with the display area edge that includes the display area edge point.

7. The method of Claim 6, wherein the displayed image further includes a plurality of non-edge point image points, each non-edge-point image points having a position that coincides with one of the display area edges that does not include the display area edge point, and wherein the method further comprises:

while changing the relative size of the selected zoom point, translating the position of each of the non-edge-point image points out of the display area.

8. The method of Claim 1, further comprising:
changing the relative size of the entire displayed image substantially simultaneously with the changing of the relative size of the selected zoom point.

9. The method of Claim 1, further comprising:
displaying a zoom symbol in the display area that at least partially surrounds the selected zoom point; and
translating the zoom symbol substantially coincident with the translation of the selected zoom point.

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10. The method of Claim 9, further comprising:
displaying a cursor symbol in the display area; and
removing the zoom symbol from the display area when the cursor symbol is moved.

11. The method of Claim 1, wherein the selected zoom point is translated along the zoom line from an original position to a final position, and wherein the method further comprises:

storing data representative of at least the selected zoom point original position.

12. The method of Claim 11, further comprising:

translating the selected zoom point along a substantially straight line from the final position to the stored original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

13. The method of Claim 12, wherein the displayed image comprises a plurality of image points, and wherein the method further comprises:

translating each image point from an original position to a final position when changing the relative size of the selected zoom point.

14. The method of Claim 13, further comprising:

storing data representative of each image point original position.

15. The method of Claim 14, further comprising:

translating each image point along a substantially straight line from its final position to its stored original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

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16. The method of Claim 1, wherein the displayed image includes one or more sections that are not visible within the display area, and wherein the method further comprises:

- scrolling the displayed image in one or more directions, whereby the original and final positions of the zoom point and each of the image points are each changed to updated original and final positions;
- storing each of the updated positions; and
- translating the selected zoom point and each image point along a substantially straight line from its final position to its stored updated original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

17. The method of Claim 1, further comprising:

- selecting a new zoom point after changing the relative size of the previously selected zoom point, the new zoom point having an original position and an original zoom line associated therewith,
- wherein the new zoom point original position is its position before the relative size of the previously selected zoom point was changed, and
- wherein the original zoom line is a substantially straight line that passes through the new zoom point original position and extends between the display area central point and a display area edge point that is closest to the new zoom point

18. The method of Claim 17, further comprising:

- changing the relative size of the new zoom point while moving the new zoom point to a position it would have occupied had the new zoom point been the previously selected zoom point, and its relative size had been changed and translated along the new zoom point original zoom line.

19. The method of Claim 17, further comprising:

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moving the new zoom point from its present position to a new position on the new zoom point original zoom line; and

changing the relative size of the new zoom point while translating the new zoom point along the new zoom point original zoom line.

20. The method of Claim 17, further comprising:

moving the new zoom point from its present position to a new position on an average zoom line; and

changing the relative size of the new zoom point while translating the new zoom point along the average zoom line,

wherein the average zoom line corresponds to an average of the new zoom point original zoom line and a new zoom point zoom line, the new zoom point zoom line passing through the new zoom point at its position prior to being enlarged, and extending between the display area central point and the display area edge point that is closest to the new zoom point.

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21. A display device, comprising:
a user interface operable to receive user input and supply one or more command signals;
a display screen having one or more edges that define an image display area in which a displayed image may be rendered; and
a processor coupled receive the commands from the user interface and operable, in response thereto, to (i) select a zoom point in the displayed image that corresponds to a point in the displayed image that is to be zoomed and (ii) change the relative size of the selected zoom point while translating the selected zoom point along a substantially straight zoom line that passes through the selected zoom point and extends between a central point in the display area and an edge point on the display area that is closest to the selected zoom point.

22. The system of Claim 21, wherein the processor is further operable to:
inhibit any further change in relative size, and any further translation along the zoom line, when the relative size change attains a predetermined magnitude or the selected zoom point reaches the central point in the display area.

23. The system of Claim 21, wherein, when the selected zoom point substantially coincides with the display area central point, the selected zoom point does not translate while its relative size is changing.

24. The system of Claim 21, wherein the processor is further operable to translate at least a portion of the displayed image out of the display area while the relative size of the selected zoom point is changing.

25. The system of Claim 21, wherein:

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the displayed image includes an edge point, the image edge point located at a position on the display area edge that coincides with the display area edge point to which the zoom line extends; and

the processor is further operable to maintain the position of the image edge point while the relative size of the selected zoom point is changing.

26. The system of Claim 21, wherein:

the displayed image includes a plurality of image points aligned with the display area edge that includes the display area edge point to which the zoom line extends; and

the processor is further operable to maintain the alignment of each of the image points with the display area edge that includes the display area edge point while the relative size of the selected zoom point is changing.

27. The system of Claim 26, wherein:

the displayed image further includes a plurality of non-edge point image points, each non-edge-point image points having a position that coincides with one of the display area edges that does not include the display area edge point; and

the processor is further operable to translate the position of each of the non-edge-point image points out of the display area while the relative size of the selected zoom point is changing.

28. The system of Claim 21, wherein the processor is further operable to change the relative size of the entire displayed image substantially simultaneously with changing the relative size of the selected zoom point.

29. The system of Claim 21, wherein the processor is further operable to:

display a zoom symbol in the display area that at least partially surrounds the selected zoom point; and

translate the zoom symbol substantially coincident with the translation of the selected zoom point.

30. The system of Claim 29, wherein the processor is further operable to:
display a cursor symbol in the display area; and
remove the zoom symbol from the display area when the cursor symbol is moved.

31. The system of Claim 21, wherein the processor is further operable to:
translate the selected zoom point along the zoom line from an original position to a final position, and
store data representative of at least the selected zoom point original position.

32. The system of Claim 31, wherein the processor is further operable to:
translate the selected zoom point along a substantially straight line from the final position to the stored original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

33. The system of Claim 32, wherein the displayed image comprises a plurality of image points, and wherein the processor is further operable to:
translate each image point from an original position to a final position when the relative size of the selected zoom point is changing.

34. The system of Claim 33, wherein the processor is further operable to store data representative of each image point original position.

35. The system of Claim 34, wherein the processor is further operable to
translate each image point along a substantially straight line from its final position to its stored original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

36. The system of Claim 21, wherein:
the displayed image includes one or more sections that are not visible within the display area; and
the processor is further operable to:

scroll the displayed image in one or more directions, in response to one or more command signals from the user interface, whereby the original and final positions of the zoom point and each of the image points are each changed to updated original and final positions,

store each of the updated positions, and

translate the selected zoom point and each image point along a substantially straight line from its final position to its stored updated original position when changing the relative size of the selected zoom point in a manner opposite to that which it was originally changed.

37. The system of Claim 21, wherein:

the processor, in response to the command signals, is further operable to select a new zoom point after the relative size of the previously selected zoom point changed, the new zoom point having an original position and an original zoom line associated therewith;

the new zoom point original position is its position before the relative size of the previously selected zoom point was changed; and

the original zoom line is a substantially straight line that passes through the new zoom point original position and extends between the display area central point and a display area edge point that is closest to the new zoom point.

38. The system of Claim 37, wherein the processor is further operable to change the relative size of the new zoom point while moving the new zoom point to a position it would have occupied had the new zoom point been the previously selected zoom point, and its relative size had been changed and translated along the new zoom point original zoom line.

39. The system of Claim 37, wherein the processor is further operable to:

move the new zoom point from its present position to a new position on the new zoom point original zoom line; and

change the relative size of the new zoom point while translating the new zoom point along the new zoom point original zoom line.

40. The system of Claim 37, wherein:

the processor is further operable to (i) move the new zoom point from its present position to a new position on an average zoom line and (ii) change the relative size of the new zoom point while translating the new zoom point along the average zoom line; and

the average zoom line corresponds to an average of the new zoom point original zoom line and a new zoom point zoom line, the new zoom point zoom line passing through the new zoom point at its position prior to being enlarged, and extending between the display area central point and the display area edge point that is closest to the new zoom point.